WHAT IS CLAIMED IS:

1. A sensor comprising:

a ferrule, the ferrule having a bore formed therein;

an optical fiber disposed within the bore;

a spacer having a first end and a second end, the first end being attached to an end of the ferrule, the spacer having an opening formed therein; and

a diaphragm attached to the second end of the spacer such that it extends over the opening in the spacer, the diaphragm having an inside reflecting surface facing an end of the optical fiber, the end of the optical fiber and the inside reflecting surface of the diaphragm being spaced apart to form a Fabry-Perot cavity.

2. The sensor of Claim 1, wherein the ferrule is formed of a single crystal material.

3. The sensor of Claim 2, wherein the single crystal material is single crystal sapphire.

4. The sensor of Claim 3, wherein the spacer and the diaphragm are also formed from single crystal sapphire.

5. The sensor of Claim 4, wherein the optical fiber is also formed from single crystal sapphire.

6. The sensor of Claim 2, wherein the spacer and the diaphragm are also formed from a single crystal material.

7. The sensor of Claim 2, wherein the optical fiber is also formed from a single crystal material.

8. The sensor of Claim 1, wherein the ferrule, spacer and diaphragm are formed from glass.

9. The sensor of Claim 1, wherein the ferrule, spacer and diaphragm are formed from silica.

10. The sensor of Claim 1, wherein the fiber is welded to the ferrule along a portion of the fiber that is disposed within the bore.

11. The sensor of Claim 1, wherein the fiber is welded to the ferrule along an entire length of the fiber that is disposed within the bore.

12. The sensor of Claim 1, wherein the ferrule is welded to the spacer.

13. The sensor of Claim 1, wherein the diaphragm is welded to the spacer.

14. The sensor of Claim 1, wherein the ferrule has a circular cross sectional shape.

15. The sensor of Claim 1, wherein the spacer has an annular shape with a circumference approximately equal to a circumference of the ferrule.

16. A method for forming a diaphragm sensor comprising the steps of:

attaching a spacer to a first face of a ferrule, the ferrule having a bore formed therein, the bore intersecting the first face, the spacer having an opening formed therein, the opening being positioned over the bore;

attaching a diaphragm to the spacer, the diaphragm extending over the opening in the spacer and over the bore in the first face of the ferrule;

disposing an optical fiber within the bore, the optical fiber having an end;

attaching the optical fiber to the ferrule;

whereby the end of the optical fiber and a surface of the diaphragm extending over the bore form a Fabry-Perot cavity.

17. The method of Claim 16, wherein the ferrule is formed from a single crystal material.

18. The method of Claim 17, wherein the single crystal material is single crystal sapphire.

19. The method of Claim 18, wherein the spacer and the diaphragm are also formed from single crystal sapphire.

20. The method of Claim 19, wherein the optical fiber is also formed from single crystal sapphire.

21. The method of Claim 17, wherein the spacer and the diaphragm are also formed from a single crystal material.

22. The method of Claim 17, wherein the optical fiber is also formed from a single crystal material.

23. The method of Claim 16, wherein the ferrule, spacer and diaphragm are formed from silica.

24. The method of Claim 16, wherein the ferrule, spacer and diaphragm are formed from glass.

25. The method of Claim 16, wherein the optical fiber is laser welded to the ferrule.

26. The method of Claim 16, wherein the ferrule is laser welded to the spacer.

27. The method of Claim 16, wherein the diaphragm is laser welded to the spacer.

28. The method of Claim 16, further comprising the step of forming the spacer by cutting a portion of a tube to a desired length.

29. The sensor of Claim 16, further comprising the step of forming a partial vacuum between the diaphragm and the ferrule and wherein the attaching steps are performed such that the partial vacuum is maintained.

30. A sensor comprising:

a ferrule formed of a single crystal material, the ferrule having a bore formed therein, the ferrule having a face, the face having a pit formed in a face therein, the pit having a wider diameter than a diameter of the bore, the bore intersecting the pit;

a diaphragm attached to the ferrule such that it extends over the pit, the diaphragm having an inside reflecting surface facing the pit; and

a fiber disposed within the bore, an end of the optical fiber and the inside reflecting surface of the diaphragm being spaced apart to form a Fabry-Perot cavity.

31. The sensor of Claim 30, wherein the single crystal material is single crystal sapphire.

32. The sensor of Claim 31, wherein the diaphragm is also formed from single crystal sapphire.

33. The sensor of Claim 31, wherein the optical fiber is also formed from single crystal sapphire.

34. The sensor of Claim 31, wherein the diaphragm is also formed from a single crystal material.

35. The sensor of Claim 34, wherein the optical fiber is also formed from a single crystal material.

36. A method for forming a sensor comprising the steps of:

forming a pit in a face of a ferrule, the ferrule being formed from a single crystal material and having a bore formed therein, the pit being formed such that it intersects the bore;

attaching a diaphragm to the ferrule such that it extends over the pit, the diaphragm having an inside reflecting surface facing the pit;

disposing an optical fiber within the bore; and

attaching the optical fiber to the ferrule, an end of the optical fiber and the inside reflecting surface of the diaphragm being spaced apart to form a Fabry-Perot cavity.

37. The method of Claim 36, wherein the single crystal material is single crystal sapphire.

38. The method of Claim 37, wherein the diaphragm is also formed from single crystal sapphire.

39. The method of Claim 38, wherein the optical fiber is also formed from single crystal sapphire.

40. The method of Claim 36, wherein the diaphragm is also formed from a single crystal material.

41. The method of Claim 36, wherein the optical fiber is also formed from a single crystal material.

42. A sensor comprising:

a ferrule formed of a single crystal material, the ferrule having a bore formed therein;

a diaphragm attached to the ferrule, the diaphragm having a pit formed in a

surface of the diaphragm facing the ferrule, the pit having a wider diameter than a diameter of the bore, the pit having an inside reflecting surface facing the ferrule; and

a fiber disposed within the bore, an end of the optical fiber and the inside reflecting surface of the pit on the diaphragm being spaced apart to form a Fabry-Perot cavity.

43. The sensor of Claim 42, wherein the single crystal material is single crystal sapphire.

44. The sensor of Claim 43, wherein the diaphragm is also formed from single crystal sapphire.

45. The sensor of Claim 42, wherein the optical fiber is also formed from single crystal sapphire.

46. The sensor of Claim 42, wherein the diaphragm is also formed from a single crystal material.

47. The sensor of Claim 46, wherein the optical fiber is also formed from a single crystal material.

48. A method for forming a sensor comprising the steps of:

forming a pit in a face of a diaphragm, the pit having a first diameter and an inside reflecting surface;

attaching the diaphragm to a ferrule, the ferrule being formed from a single crystal material and having a bore formed therein, the bore having a second diameter smaller than the first diameter of the pit;

disposing an optical fiber within the bore; and

attaching the optical fiber to the ferrule, an end of the optical fiber and the inside reflecting surface of the diaphragm being spaced apart to form a Fabry-Perot cavity.

49. The method of Claim 48, wherein the single crystal material is single crystal sapphire.

50. The method of Claim 48, wherein the diaphragm is also formed from single crystal sapphire.

51. The method of Claim 50, wherein the optical fiber is also formed from single crystal sapphire.

52. The method of Claim 48, wherein the diaphragm is also formed from a single crystal material.

53. The method of Claim 48, wherein the optical fiber is also formed from a single crystal material.